

PUBLICATION NUMBER : 05075107
PUBLICATION DATE : 26-03-93

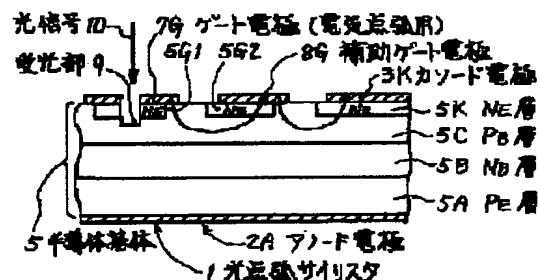
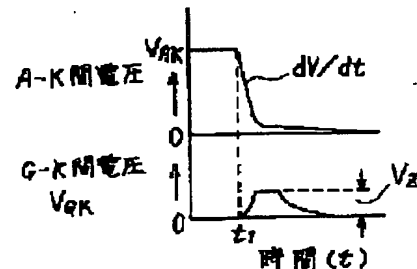
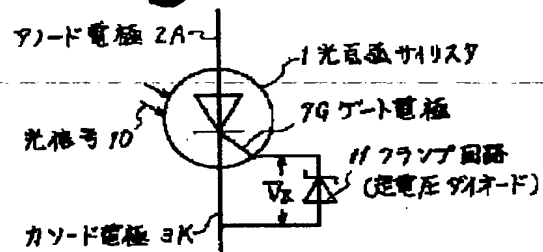
APPLICATION DATE : 07-11-91
APPLICATION NUMBER : 03290267

APPLICANT : FUJI ELECTRIC CO LTD;

INVENTOR : IDE TETSUO;

INT.CL. : H01L 29/74

TITLE : OVERVOLTAGE PROTECTING DEVICE
FOR OPTICAL IGNITION THYRISTOR



ABSTRACT : **PURPOSE:** To reduce an overvoltage while suppressing a decrease in dynamic characteristics and to improve reliability by providing a clamp circuit for suppressing an overvoltage generated at the time of an optical ignition between a gate electrode and a cathode electrode to a predetermined clamp voltage.

CONSTITUTION: When a receiver of an optical ignition thyristor 1 is irradiated with a light signal 10 to be optically ignited, an overvoltage V_{GK} is generated between G and K as a voltage V_{AK} between A and K is lowered at a falling rate dV/dt , and applied to a Zener diode 11. The diode 11 becomes conductive during a period in which it exceeds its Zener breakdown voltage V_Z to suppress the overvoltage V_{GK} to the voltage V_Z . Accordingly, if the voltage V_Z is set to a range which does not exceed a gate allowable loss allowed between the G and the K at this time, a PB layer 5C disposed between a gate electrode 7G and an auxiliary gate electrode 8G is protected against a damage due to the overvoltage and a thermal breakdown due to a gate loss. Thus, dynamic characteristics such as optical ignition sensitivity, dV/dt characteristic, etc., can be stabilized.

COPYRIGHT: (C)1993,JPO&Japio